



EFFECT OF ICE PACK APPLICATION ON PEDAL EDEMA IN THE ANTENATAL MOTHERS ADMITTED IN SELECTED HOSPITAL OF NAVI MUMBAI

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ABSTRACT

Effect of ice pack application on pedal edema in the antenatal mothers admitted in selected hospital of Navi Mumbai

The objectives of the study are:

- 1) Assess the effect of ice application for reducing pedal edema.
- 2) Find out association of demographic variable with post test score.
- 3) Compare the pre-test and post-test value.

Methodology:

The research approach is a Quasi experimental research design (one group pretest- post test research design) was used for the study and descriptive research. The sample of the study consist of 30 samples of antenatal mothers admitted in antenatal ward of selected hospital at Navi Mumbai.

The tool of the study consists of two section:

Section 1: It includes demographic information which consist 7 demographic items about the background data of the antenatal mothers like age, occupation, education, body weight, gravida, parity, gestational weeks. **Section 2:** It include standardized tool (sidle scale). Total score of the sidle scale (0 mm to 8 mm), the expected determines the content validity of the final tool was for pilot study. A pilot study conducted on 10 samples antenatal mothers of selected hospitals of Navi Mumbai to check the feasibility and practicability of the tool.

The final study was conducted, and the data was collected from the 30 samples. Based on the objective, the data was analyzed using dependent T test which is only statistical method used in experimental study. The symbol of dependent T test as per the findings and interpretation of the data analysis, the result shows that ice pack application is more effective method use for decreasing pedal edema in antenatal mothers.

CHAPTER - I

INTRODUCTION:

Edema is a swelling which is caused due to accumulation of fluid due to release of fluid from small blood vessels (capillaries) or interstitial spaces to nearby tissues. Swelling may be caused due to the reasons such as pressure within the blood vessels, build-up of fluid following removal of the lymph nodes, inflammation, water retention, hydrostatic Pressure, tissue (interstitial) oncotic pressure. The capillary damage or increased pressure either by injury or inflammation leads to the swelling of the body parts. It may affect a small area or even entire body. The affected body part is considered to be edematous. Edema is most commonly seen in the legs, feet, ankles and it can even affect other body parts. During pregnancy, hormones including estrogen, progesterone and prolactin rise rapidly. It turns the womb into a suitable environment for the baby's growth. And at the same time, it could cause discomfort to the mother. Most of these changes are normal and some of them are Heartburn, Nausea and Morning Sickness, constipation, frequent urination, edema which present on both the extremities and it can happen in any trimester.

During normal pregnancy total body water increases by 6 to 8 liters, 4 to 6 liters of which are extracellular, of which at least 2 to 3 liters are interstitial. At some stage in pregnancy 8 out of 10 women have demonstrable clinical edema. There is also cumulative retention of about 950 mmol of sodium distributed between the maternal extracellular compartments and the product of conception. Thus, changes in factors governing renal sodium and water handling accompany alterations in local Starling forces whereby there is a moderate fall in interstitial fluid colloid osmotic pressure (COPi) and a rise in capillary hydrostatic pressure (Pc), as well as changes in hydration of connective tissue ground substance. Edema is a traditional criterion for diagnosing pre-eclampsia but should no longer be used as its detection is not clinically useful. The role of diuretics in obstetric practice should be restricted to the management of pulmonary edema in pre-eclampsia. Volume expansion therapy in pregnancy runs the risk of pulmonary or cerebral edema, particularly in the immediate puerperium. Vulval edema and erythematous edema associated with deep venous thrombosis are rare but dangerous complications of pregnancy.

BACKGROUND OF THE STUDY:

"Sometimes the strength of motherhood is greater than natural laws"

The overall prevalence of leg edema during pregnancy was 8.5 %. The earliest gestational age at which leg edema during pregnancy first appeared was 24 weeks. Among those who had it in previous pregnancy, it disappeared in 100% of

cases within one week of delivery.

Although 380 out of the 666 women in their second or higher order pregnancies (representing 57.1% of that population) had leg edema during one or more previous pregnancies, none of them remembered any specific adverse pregnancy event or outcome that result from the edema.

Pregnancy and childbirth are special events in a women's life. The onset of motherhood presents a unique set of physical, emotional, psychological challenges. Mother needs all the care, comfort and knowledge to deal with the physical and emotional changes that affect her during pregnancy. Among all the other pregnancy related symptoms like a backache and headache, leg cramps, pedal edema are a common problem. However, this is a temporary condition which can be treated.

Lower extremities edema is a common complain during pregnancy and associated with daily activity limitations. Common intervention to reduce edema includes leg elevation and immersion in water which represents potential interventions to eliminate or minimize some of the functional limitations associated with legs edema during there are the ways to rule out the pedal edema in antenatal mother and are decrease the use of caffeine intake, by elevating the foots, lie on left side and by doing 30 minutes daily Pregnancy.

NEED OF THE STUDY:

Maternal physiological changes in pregnancy are the adaptations during pregnancy that a woman's body undergoes to accommodate the growing embryo or fetus. There are some common minor ailments which occur during pregnancy and pedal edema is one from the some ailments. Compression of the inferior vena cava (IVC) and pelvic veins by the uterus leads to increased hydrostatic pressure in lower extremities. Treatment includes raising legs above the heart, advising patient to sleep on her left side to prevent the uterus from impinging on the inferior vena cava, reflexology, water emersion & compression stockings.

Edema or swelling, of the feet is common during pregnancy, partly because the enlarging uterus compresses veins and lymphatic drainage from the legs and is associated with the number of activity limitations. Common intervention for edema includes elevation and use of compression. cold application on pedal edema represents another potential intervention to eliminate or minimize some of the functional limitations associated with peripheral edema during pregnancy. Mother needs all the care, comfort and knowledge to deal with the physical and emotional changes that affect her during pregnancy. Among all the other pregnancy related symptoms like a backache and headache, leg cramps, Pedal edema

are a common problem. However, this is a temporary condition which can be treated.

PROBLEM STATEMENT:

"Effect of ice pack application on pedal edema among antenatal mothers admitted in selected hospitals, Navi Mumbai"

OBJECTIVES:

- 1) To determine the depth of pedal edema before icepack application among antenatal mothers.
- 2) To assess effect of ice pack application on the depth of pedal edema.
- 3) To compare before and after application of icepack on depth of pedal edema.
- 4) To find out the association between depth of edema with selected demographic variables.

OPERATIONAL DEFINITION:

1. **ICE PACK:** "Ice application is defined as "frozen water". Pack is defined as "cover or surrounded with something crammed tightly."

In our study "Ice packs means, a pack containing ice that is put on the oedematous part.

2. **PEDALEDEMA:** "Pedal edema means swelling or edema on leg due to high venous returning the pregnant mothers.

"In our study "Pedal edema means swelling of feet and ankles cause by retention of fluid in feet and ankles.

3. **ANTENATAL MOTHER'S:** "antenatal mothers means the period occurring before birth; during or relating to pregnancy.

"In our study "Antenatal means "period before the birth of child.

HYPOTHESIS:

Ho1:- There is no significant difference between before and after application of ice pack on depth of pedal edema.

Ho2:- There is no association between depth of edema with selected demographic variable

LIMITATION:

- This study is limited to NMMC hospital of Navi Mumbai.
- Study is limited to antenatal mother admitted on IPD basis.

CHAPTER - II

REVIEW OF LITERATURE:

Review of literature is an essential step in the development of a research project. It enables the researchers to develop insight into the study and plan the methodology. Further, it provides the basis for future investigation, justifies the need for replication, throws light on the feasibility of the study, and indicates constraints of the data collection. It helps to relate the finding from one study to another with a view to establish a comprehensive body of scientific knowledge in the professional discipline, from which valid and pertinent theories may be developed.

"The review of literature is defined as broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print material, audiovisual material and personal communications".

– BT Basvanthappa

A literature review is a body of text that aims to review the critical points of current knowledge of a particular topic, with academic oriented literature. A review of literature usually precedes a research proposal of a result section its ultimate goal is to bring the leader up to date with current literature on a topic and forms the basis for another goal such as future research is needed in this area.

Thus in this research study, the review of literature has been divided under the following heading :-

Review of literature contains following study:

- **SECTION 1:-** Studies related to Effect of ice pack application on pedal edema.
- **SECTION 2:-** Study related to cold application in regard to reduce pedal edema in pregnancy.
- **SECTION 3:-** A study to assess the effect of ice pack in relieving pedal edema.

SECTION 1: STUDIES RELATED TO EFFECTIVENESS OF ICE PACK
Kamali hospital at Karaj (Iran) conducted a research in year 2009, to evaluate the effectiveness of the cold packs in relieving pedal edema of Iranian antenatal mothers. This clinical trial involved 60 qualified antenatal women admitted for labor in kamali hospital in Karaj. They were then randomly divided into two groups: 30 cases use ice pack & 30 controlled groups receiving the hospital routine. The participant edema was recorded on sidle scale respectively edema was evaluated for 3-5 days after application of ice pack on pedal edema and evaluation of the study stated that ice packs were more effective in relieving pedal edema.

SECTION 2: A STUDY RELATED TO COLD APPLICATION IN REGARD TO REDUCE PEDALEDEMA IN PREGNANCY

The study was conducted by JM. Irion (august 2011) on a study to determine the effectiveness ice pack application as a means of reducing peripheral edema in pregnancy .the data was collected by 32 pregnant women in at least their 34th weeks of a normally progressing pregnancy were assigned randomly either in sleeping or to sitting upright in a chair with the legs elevated at poolside. Subjects in the water group were immersed up to the xiphoid process for 20 minutes in swimming pool (85-90 F). subjects in the land group sat on a chair with both feet elevated for 20 minutes. changes in right foot volume were quantified by foot volume try immediately pre and post intervention and the result was found that the right foot volume decreased 38 – 18ml for W and increased 2-14ml and the conclude that, the water immersion for 20 minutes is an effective means of decreasing pedal edema during pregnancy.

SECTION 3: A STUDY TO ASSESS THE EFFECT OF ICE PACK IN RELIEVING PEDALEDEMA

A study conducted by harry s. trauma in 2011 at memorial veteran's hospital Columbia Missouri 30 samples were taken to assess the effectiveness of ICE PACK APPLICATION was found effective in reducing edema. So, the investigators felt the need of ice pack (play an important role) ON PEDAL EDEMA IN ANTENATAL MOTHERS.

CHAPTER - III

RESEARCH METHODOLOGY:

Research methodology or design refers to the enhancing the integrity Of the study. Research methodology is a way to solve research problem systematically methodology provides a systematic course of action for the researcher to progress towards the end of the study.

The research objectives have been met through analysis of relevant data obtained through an experimental survey. Primary survey conducted with a sample size of 30 and the data obtained was analysed using t - test. Further, Seidel scale was used to assess the pedal edema. The study was conducted from NMMC Hospital, Navi Mumbai.

This chapter deals with the methodology used by the investigators to assess the effect of ice pack application on pedal edema. It has been discussed under the following topics.

RESEARCH APPROACH:

In this study, a Quantitative research approach

RESEARCH DESIGN:

A quasi experimental research design (one group pretest- posttest research design) was used for the study.

A quasi experimental is an empirical study used to estimate the causal impact of an intervention on its target population. Quasi-experimental research similarities with the traditional experimental design or randomized controlled trial, but they specifically lack the element of random assignment to treatment or control.

VARIABLES:

A study consists of two variables:

- *Independent variable:* ice pack application
- *Dependent variable:* pedal edema

SETTING:

The research is performed on antenatal mothers admitted in NMMC hospital, Navi Mumbai"

POPULATION:

A population is a complete set of persons or objects that possess some common characteristics that is of interest to the researcher. The population for a study usually is describe as being and the composed of two group the target population and the accessible population.

The target population with is also called the universe. Is composed of the entire group of people or objects to which the researcher wishes to generalize the findings of the study. the target population consists of people or things that

meet the designated setup criteria of interest to the researcher. The research performed on antenatal mothers in selected hospital, Navi Mumbai. The accessible population refers to aggregate of cases which conform to the designated.

The target population to study the research is 30 antenatal mothers admitted in antenatal ward of NMMC hospital, Navi Mumbai.

SAMPLE:

A sample is used in research when it is not feasible to study the whole population from which is drawn. The process of sampling makes it possible to accept a generalization to the intended population based on careful observation of variables, within a relatively small proportion of the population. "A sample is the small portion of the population selected to participate in the research study."

The sample selected for the present study comprised of antenatal mothers of ANC ward of NMMC hospital, Navi Mumbai.

SAMPLE TECHNIQUE:

A non-probability convenient sampling technique was used for selecting 30 antenatal mothers who met the designated set of criteria during the period of data collection.

SAMPLE SIZE:

In this study, 30 Samples antenatal mothers admitted in Antenatal Ward of NMMC Hospital, Navi Mumbai.

SAMPLE SELECTION CRITERIA:

The following criteria were set for the selection of sample.

INCLUSIVE CRITERIA:

1. Antenatal mothers who are admitted in antenatal ward of selected hospital of Navi Mumbai
2. Antenatal mothers who have pedal edema

EXCLUSIVE CRITERIA:

1. Antenatal mothers who are not willing to participate in the study
2. Antenatal mothers who are severely ill (low immunity)

DATA COLLECTION TECHNIQUE AND TOOL:

The most important and crucial aspect of any investigation is the collection of appropriate information which would provide necessary data to answer the questions raised in the study.

Collection of data refers to a purposive gathering of information relevant to the subjects matter under study and the methods used depends mainly on the nature, purpose and scope of the enquiry to be under taken, as well as on the availability of resource and time (Kulkarni 1996)

The sample selected, the investigator approached the concerned authority of NMMC Hospital of Navi Mumbai and discussed the objective of the study. A formal permission was taken from the authority consent was obtained from the participation. the present study was aimed to assess effect of ice pack application on pedal edema in antenatal mother admitted in antenatal ward of NMMC Hospital, Navi Mumbai.

SECTION1:- Demographic variables

SECTION 2:- sidle scale

SCORING SYSTEM OF THE TOOL:

SEIDEL SCALE

SCORE	DEPTH	CHARACTERISTICS
0	0	No clinical edema
1	2mm	Slight pitting with no visible distortion
2	4mm	Somewhat deeper pit with no readily detectable distortion
3	6mm	Noticeably deep pit with the dependent extremity full and swollen
4	8mm	Very deep pit with the dependent grossly distorted

VALIDITY:

The tool for collecting the data self-structured questionnaire and standard tool (sidle scale) was prepared. this were given to 06 experts along with the blueprint and objectives of this study to establish the content validity of the tool. The experts are from the nursing department. they were requested to give their opinion and suggestion regarding the relevancy of the tool.

RELIABILITY REPORT:

The reliability of meaning instrument is major criterion for assessing for its quality and adequacy. (polit and hungler 1999)

Reliability has to do with the quality of measurement in its everyday sense; reliability is the consistency or "repeatability" of measures. Reliability is the consistency of set of measurement or measuring instrument. Reliability does not imply validity. Reliability is extent to which the measurement of the test remains consistent over repeated test of the same subjects under identical condition.

PROCEDURE OF DATA:

- 1) Select the patient according to pedal edema
- 2) Assess the pedal edema
- 3) Explain the procedure to the patient
- 4) Take the signature on the consent letter
- 5) Fill all the demographic variables
- 6) Provide supine position to the patient
- 7) Give privacy to the patient
- 8) Apply the ice pack on edema for 20 minutes
- 9) After 20 minutes remove the ice pack.
- 10) Re-assess the pedal edema
- 11) Give proper position to the patient
- 12) Note the pre-test and post-test difference
- 13) Do the same procedure 3 times in a day every 4 hourly
- 14) Plan for data analysis.

PILOT STUDY:

A pilot study is small scale version of trial run of the measure study. Function of the study is often information for improving the project or for assessing its feasibility (Pilot and Hungler, 1995)

"Pilot study is the study carried out at the end of the planning face of the research, in order to explore and test the research element"

- BT Basavanthappa

Pilot study was conducted on 10 antenatal mothers at ANC WARD NMMC hospital Out of which –

5 experimental

-5 controlled

After pilot study no specific changes were made in the tool. The same tool was used for the final study as the tool was found feasible.

PLAN FOR DATA DISSEMINATION:

The data is collected by using the non-probability technique is analyzed by Descriptive analysis

CHAPTER – III

DATA ANALYSIS AND INTERPRETATION:

Analysis of data means "a process off organizing and synthesizing data in such a way that research question can be answered, and hypothesis tested"

This chapter deals with the statistical of data collected by the researcher. Its main purpose was to summarize and organize the data in meaningful way so as to interpret and provide answers to the questions raised in the study.

The data obtained from the sample has been classified and tabulated under the following section.

Section 1:

Demographic Details of the sample under the study.

Section 2:

It includes the standardized SEIDEL SCALE used for assessing pedal edema before and after the application of ice pack

SECTION – 1:

- Data analysis on demographic variable: -

1. Age:

Age	Frequency	Percentage
18 -20	3	10%
21-23	10	33.34%
24-26	7	23.33%
above 26	10	33.33%

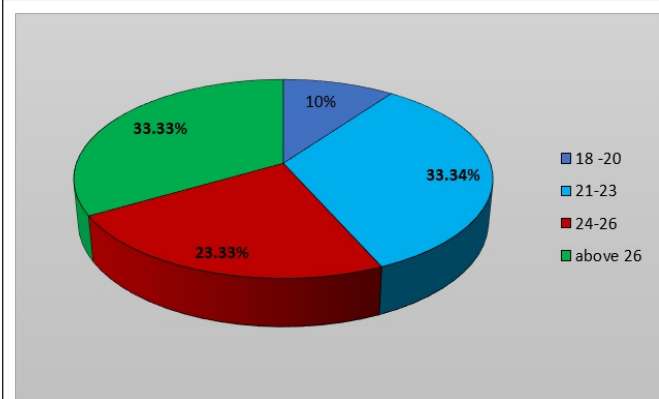


Fig. 1: Shows the age of the sample participates in this study.

2. Occupation:

Occupation	Frequency	Percentage
housewife	20	66.6
working in office	2	6.7
labour	3	10
others	5	16.7

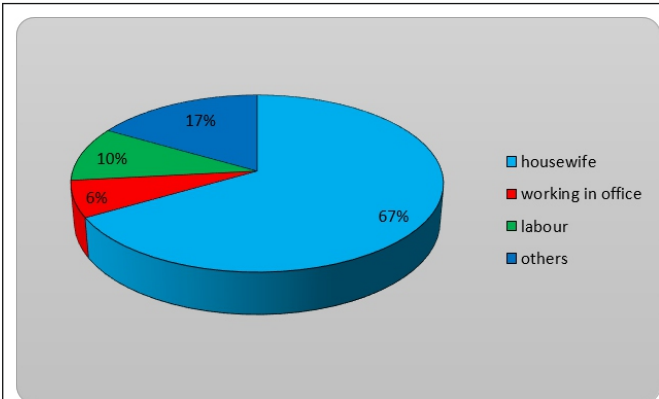


Fig. 2: Shows the occupation of the samples participating in the study

The graph shows that 67% of samples are under the housewife, 10% of samples are under the labour, 6% of sample under working in office and the remaining 17% are come under other occupation like tailor, house keeper.

3. Body Weight:

Body weight	Frequency	Percentage
40-50 kg	8	26.7
51-60 kg	15	50
61-70 kg	6	20
above 70 kg	1	3.3

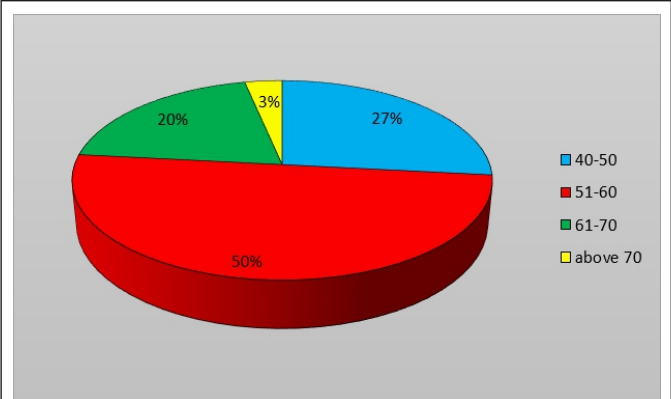


Fig. 3: Graph shows that body weight of the samples participating in the study

The result show that 50% of samples are under 51-60 kg, 27% of samples in 40-50 kg, 20% of samples in 61-70 kg and remaining 3% are above 70 kg.

4. Education:

Education	Frequency	Percentage
illiterate	7	23.33
primary	15	50
secondary	7	23.34
graduate	1	3.33

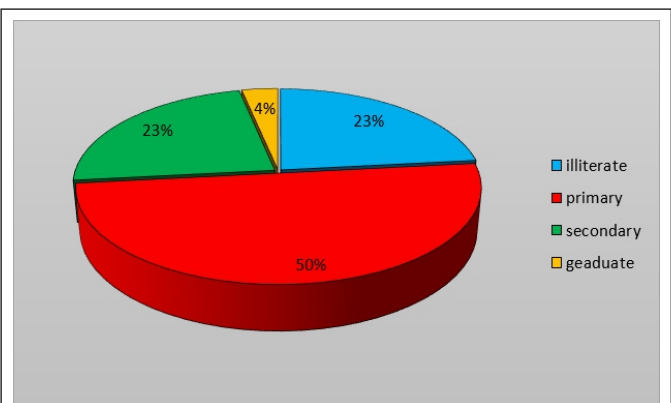


Fig. 4: Shows that education of the samples participating in the study

The graph shows that 50% samples are under primary education, 23% of the samples are under illiterate and secondary education and 4% are under graduation.

DATA ANALYSIS ON OBSTETRICAL VARIABLE:**1. Gravida:**

Gravida	Frequency	Percentages
G1	10	33.34
G2	15	50.00
G3	4	13.33
above G3	1	3.33

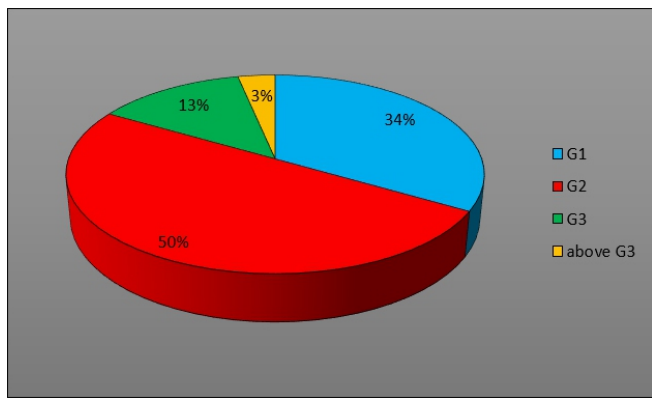


Figure 5: Graphs show that gravid of the samples participating in the study.

The result show that 50% of the samples are under the gravid-2, 34% of the samples are gravid-1, 13% of the samples are gravid-3 and remaining 3% of the samples are under above gravid-3.

2. Gestational Weeks:

Gestational weeks	Frequency	Parity
1 to 12	0	0%
13-28	8	26.70%
29-36	18	60%
above 4	4	13.3%

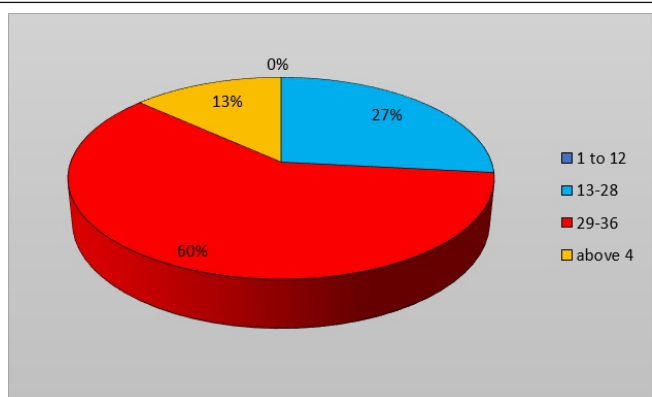


Fig. 6: Graph shows that gestational weeks of the samples participating in the study

The result shows that 60% of the samples are under 29-36 weeks, 27% of the samples are under 13-28 weeks and 13% of the samples are under above 36 weeks.

3. Parity:

Parity	Frequency	Percentages
P0	10	33.33
P1	16	53.33
P2	4	13.34
above 2	0	0

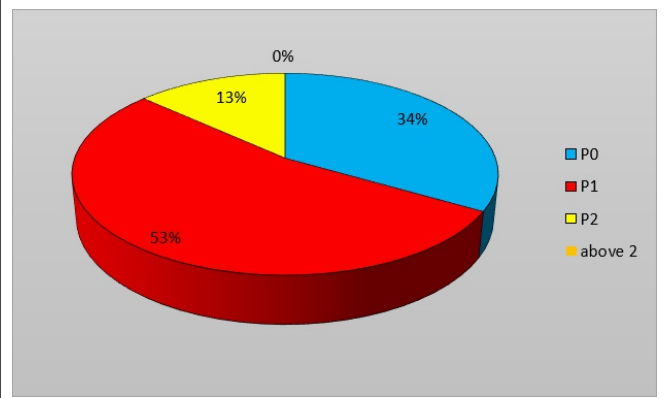


Fig. 7: Shows that parity of the samples participating in the study

The result shows that 53% of the samples are under parity-1, 34% of the samples are under parity-0, and 13% of the samples are under parity-2.

SECTION 2

Calculation of the data: -

Data is been calculated as per dependent t-test which is applicable for 30 samples and above.

The total sample size is 30.

Experimental 30

Average of pre-test of experimental group is 174 divided by 30 so the mean is 5.8

Average of post-test of experimental group is 100 divided by 30 so the mean is 3.33

Experimental group	mean	N
Pre-test	5.8	30
Post-test	3.33	30

The dependent T tests

The dependent T test (also called paired t-test or paired –sample test) compares the means of two related groups to determine whether there is statistically significant difference between these means. Thus, it is stated below.

As per dependent t-test

N = number of samples

SD = standard deviation

SE = standard error

T-test = dependent t-test

$T\text{-test} = (\bar{x}_1 - \bar{x}_2) / SE$

$$= 5.8 - 3.33 / 0.184$$

$$= 13.423$$

According to this study, by conventional criteria, this difference is considered to be extremely statistically significant.

CHAPTER - V

SUMMARY:

We six student conducted research on “Effect of ice pack application on pedal edema in the antenatal mothers admitted in selected hospital of the Navi Mumbai.

As per the student objective was started tool was designed to assess the effect of ice pack application on pedal edema in the antenatal mother and then it was given for validity to our guide as it was standardized tool (sidle scale) and necessary changes were made and pilot study was conducted on 10 antenatal mothers admitted in antenatal wards in selected hospital, Navi Mumbai.

RECOMMENDATION:**Nursing administration:-**

The finding of the study can be used by the nurse administration as basic for educating nurses regarding their role in managing the pedal edema in antenatal mothers.

Nursing service:-

Nursing service includes preventive, promotive, curative and rehabilitative service. Nurses play an important role in all the above aspects in caring for patients with pedal edema.

Nursing education and public education:-

Nursing education means through which nurses are prepared for practicing various settings. The result of the study can be used by one nursing teachers as an informative about decreasing pedal edema in antenatal mothers with the help of ice pack application and can educate mothers regarding it.

Nursing research:-

The result of the study and tool used contributes to the body of knowledge of nursing. The suggestion and recommendation can be utilized by the other researchers conducting further study in the same field, the finding of the study has been added to the nursing literature also future investigators can use findings and methodology as a reference material.

CONCLUSION:

The research conducted "Effect of ice pack application on pedal edema in the antenatal mothers admitted in selected hospital of Navi Mumbai" the result of this research was that the ice pack application was effective in decreasing pedal edema in antenatal mothers thus it was concluded that ice pack application was effective.

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